WHAT IS CLAIMED IS:

1. A transponder for use in a communication system including, in addition to the transponder, an interrogator which transmits a carrier wave to the transponder so that the transponder receives the carrier wave, modulates the received carrier wave, and returns the modulated carrier wave as a reflected wave to the interrogator, the transponder comprising:

a carrier wave receiving and returning device which receives and returns the carrier wave transmitted from the interrogator;

a frequency hopping device which hops a frequency of a subcarrier wave according to a frequency hopping pattern representing a unit data as a first portion of an information signal, and thereby modifies the subcarrier wave; and

a carrier wave modulator which modulates, based on the subcarrier wave modified by the frequency hopping device, the carrier wave received by the carrier wave receiving and returning device, so that the carrier wave receiving and returning device returns the modulated carrier wave as the reflected wave to the interrogator.

2. The transponder according to claim 1, further comprising a subcarrier wave modulator which modulates the subcarrier wave based on a second portion of the information signal, wherein the carrier wave modulator modulates, based on the subcarrier wave modified by the frequency hopping device

and modulated by the subcarrier wave modulator, the carrier wave received by the carrier wave receiving and returning device.

3. The transponder according to claim 2, wherein at least one of the first and second portions of the information signal comprises identification information usable to identify the transponder as a first transponder in distinction from a second transponder of the communication system, and wherein the unit data comprises transmission information to be transmitted, with the identification information, from the transponder to the interrogator.

4. The transponder according to claim 1, wherein the unit data consists of at least one bit.

5. The transponder according to claim 1, wherein the unit data consists of at least one symbol.

6. The transponder according to claim 4, wherein the unit data consists of a plurality of bits, and wherein the frequency hopping device hops, according to the frequency hopping pattern representing the plurality of bits, the frequency of the subcarrier wave a plurality of times a total number of which is equal to a total number of the plurality of bits.

7. The transponder according to claim 5, wherein the unit data consists of a plurality of symbols, and

wherein the frequency hopping device hops, according to the frequency hopping pattern representing the plurality of symbols, the frequency of the subcarrier wave a plurality of times a total number of which is equal to a total number of the plurality of symbols.

8. The transponder according to claim 1, wherein the unit data consists of not greater than eight bits.

9. The transponder according to claim 4, wherein the unit data consists of said at least one bit that can represent an arbitrary one of two different bit values, and wherein the frequency hopping device hops, according to the frequency hopping pattern representing said at least one bit, the frequency of the subcarrier wave to one of two different hopping frequencies that represent the two different bit values, respectively, said one hopping frequency representing one of the two different bit values that is actually represented by said at least one bit.

10. The transponder according to claim 5, wherein the unit data consists of said at least one symbol that can represent an arbitrary one of a plurality of different symbol values, and wherein the frequency hopping device hops, according to the frequency hopping pattern representing said at least one symbol, the frequency of the subcarrier wave to one of a plurality of different hopping frequencies that represent the

plurality of different symbol values, respectively, said one hopping frequency representing one of the different symbol values that is actually represented by said at least one symbol.

11. The transponder according to claim 2, wherein the first and second portions of the information signal comprise a plurality of common bits, wherein the subcarrier wave modulator modulates, according to each of the plurality of common bits, a corresponding one of a plurality of portions of the subcarrier wave such that said each common bit is carried by the modulated one portion of the subcarrier wave, and wherein the frequency hopping device hops, according to the frequency hopping pattern representing the plurality of common bits, the frequency of each of the plurality of portions of the subcarrier wave to a corresponding one of a plurality of hopping frequencies that represent the plurality of common bits, respectively, such that said each common bit carried by the modulated one portion of the subcarrier wave that has one of the plurality of hopping frequencies differs from the common bit represented by said one of the plurality of hopping frequencies.

12. The transponder according to claim 2, wherein the first and second portions of the information signal comprise a plurality of common symbols, wherein the subcarrier wave modulator modulates, according to each of the plurality of common symbols, a corresponding one of a plurality of portions of the subcarrier wave such that said each common symbol is

carried by the modulated one portion of the subcarrier wave, and wherein the frequency hopping device hops, according to the frequency hopping pattern representing the plurality of common symbols, the frequency of each of the plurality of portions of the subcarrier wave to a corresponding one of a plurality of hopping frequencies that represent the plurality of common symbols, respectively, such that said each common symbol carried by the modulated one portion of the subcarrier wave that has one of the plurality of hopping frequencies differs from the common symbol represented by said one of the plurality of hopping frequencies.

13. The transponder according to claim 11, wherein the frequency hopping pattern defines an initial hopping frequency representing at least a portion of an identification code identifying the transponder, and additionally defines, subsequent to the initial hopping frequency, the plurality of hopping frequencies respectively representing the plurality of common bits common to the plurality of bits carried by the modulated subcarrier wave, wherein the subcarrier wave modulator modulates, according to an initial one of the plurality of common bits, an initial one of the plurality of portions of the subcarrier wave such that the initial common bit is carried by the modulated initial portion of the subcarrier wave, and subsequently modulates, according to subsequent ones of the plurality of common bits, subsequent ones of the plurality of portions of the subcarrier wave such that the subsequent common bits are carried by the modulated subsequent portions of

the subcarrier wave, respectively, and wherein the frequency hopping device hops, according to the frequency hopping pattern, the frequency of the initial portion of the subcarrier wave to the initial hopping frequency such that the initial common bit is carried by the modulated initial portion of the subcarrier wave that has the initial hopping frequency, and subsequently hops the frequency of each of the subsequent portions of the subcarrier wave to a corresponding one of the plurality of hopping frequencies respectively representing the plurality of common bits, such that the subsequent common bits are respectively carried by the modulated subsequent portions of the subcarrier wave that respectively have the plurality of hopping frequencies respectively representing the plurality of common bits.

14. The transponder according to claim 2, wherein the subcarrier wave modulator modulates the subcarrier wave according to the second portion of the information signal, the second portion comprising at least one frame data that is usable to identify the transponder as a first transponder in distinction from a second transponder of the communication system.

15. The transponder according to claim 14, wherein said at last one frame data comprises a portion of an identification code that identifies the transponder as the first transponder in distinction from the second transponder.

16. The transponder according to claim 14, further comprising a random number generator which generates a random number, wherein said at least one frame data comprises the random number generated by the random number generator.

17. The transponder according to claim 4, wherein the unit data consists of said at least one bit data that can represent an arbitrary one of two different bit values, and wherein the frequency hopping device hops the frequency of the subcarrier wave according to one of two predetermined frequency hopping patterns each of which comprises a combination of (a) a plurality of hopping frequencies and (b) a plurality of timings when the frequency of the subcarrier wave is hopped to the plurality of hopping frequencies, respectively, said one frequency hopping pattern representing one of the two different bit values that is actually represented by said at least one bit data.

18. The transponder according to claim 5, wherein the unit data consists of said at least one symbol that can represent an arbitrary one of a plurality of different symbol values, and wherein the frequency hopping device hops the frequency of the subcarrier wave according to one of a plurality of predetermined frequency hopping patterns each of which comprises a combination of (a) a plurality of hopping frequencies and (b) a plurality of timings when the frequency of the subcarrier wave is hopped to the plurality of hopping frequencies,

respectively, said one frequency hopping pattern representing one of the different symbol values that is actually represented by said at least one symbol.

19. The transponder according to claim 4, wherein the unit data consists of said at least one bit that can represent an arbitrary one of two different bit values, and wherein the frequency hopping device hops the frequency of the subcarrier wave according to the frequency hopping pattern comprising a combination of (a) at least one hopping frequency and (b) at least one pair of time slots that represent the two different bit values, respectively.

20. The transponder according to claim 5, wherein the unit data consists of said at least one symbol that can represent an arbitrary one of a plurality of different symbol values, and wherein the frequency hopping device hops the frequency of the subcarrier wave according to the frequency hopping pattern comprising a combination of (a) at least one hopping frequency and (b) at least one group of time slots that represent the different symbol values, respectively.

21. An interrogator for use in a communication system including, in addition to the interrogator, a transponder, the interrogator transmitting a carrier wave to the transponder so that the transponder receives the carrier wave, modulates the received carrier wave based on a subcarrier wave modified

according to a frequency hopping pattern, and returns the modulated carrier wave as a reflected wave to the interrogator, the interrogator comprising:

a carrier wave transmitter which transmits the carrier wave to the transponder;

a reflected wave receiver which receives, as the reflected wave returned from the transponder, the carrier wave modulated based on the subcarrier wave modified according to the frequency hopping pattern;

a demodulator which demodulates the reflected wave received by the reflected wave receiver, into a demodulated signal;

a frame-data obtaining device which obtains, from the demodulated signal, at least one frame data;

a frequency hopping pattern recognizer which recognizes, from the demodulated signal, the frequency hopping pattern; and

an information obtaining device which obtains, from said at least one frame data obtained by the frame-data obtaining device and the frequency hopping pattern recognized by the frequency hopping pattern recognizer, identification information usable to identify the transponder, and transmission information transmitted with the identification information from the transponder to the interrogator.

22. A communication system, comprising:

at least one interrogator; and

at least one transponder,

said at least one interrogator including

a carrier wave transmitter which transmits a carrier wave to said at least one transponder,

a reflected wave receiver which receives, as a reflected wave returned from said at least one transponder, the carrier wave modulated based on a subcarrier wave modified according to a frequency hopping pattern,

a demodulator which demodulates the reflected wave received by the reflected wave receiver, into a demodulated signal,

a frame-data obtaining device which obtains, from the demodulated signal, at least one frame data,

a frequency hopping pattern recognizer which recognizes, from the demodulated signal, the frequency hopping pattern, and

an information obtaining device which obtains, from said at least one frame data obtained by the frame-data obtaining device and the frequency hopping pattern recognized by the frequency hopping pattern recognizer, identification information usable to identify said at least one transponder, and transmission information transmitted with the identification information from said at least one transponder to said at least one interrogator,

said at least one transponder including

a carrier wave receiving and returning device which receives and returns the carrier wave transmitted from the interrogator,

a frequency hopping device which hops a frequency of the

subcarrier wave according to the frequency hopping pattern representing a unit data as a portion of an information signal representing the identification information and the transmission information, and thereby modifies the subcarrier wave, and

a carrier wave modulator which modulates, based on the subcarrier wave modified by the frequency hopping device, the carrier wave received by the carrier wave receiving and returning device, so that the carrier wave receiving and returning device returns the modulated carrier wave as the reflected wave to said at least one interrogator.

23. The communication system according to claim 22, comprising a plurality of said interrogators and a plurality of said transponders, wherein each one of the plurality of interrogators can identify each one of the plurality of transponders in distinction from the other transponders.